

IN THE DRAWINGS:

Please amend the drawings in accordance with the replacement sheets attached hereto. Pursuant to 37 C.F.R. 1.121(d) two sets of drawings are included. The first set shows a clean copy of the drawings with all changes incorporated, while the second set shows the changes marked up in red. The clean copy of the drawings has been labeled as "Replacement Sheets."

REMARKS

Reconsideration and further examination of the subject patent application in light of the present Amendment and Remarks is respectfully requested.

Remarks Regarding The Drawings

Applicant notes the Examiner's objection to the formal drawings and submits herewith formal corrected drawings. No new matter has been added.

Rejection Under 35 U.S.C. §§ 102 and 103

Claims 1-3, 7, 8 and 13 stand rejected under 35 U.S.C. §102(e) as being anticipated by Militaru, as set forth on pages 2-3 of the Office Action. Further, claims 4-6 and 15 stand rejected under 35 U.S.C. §103 as being unpatentable over Militaru, as set forth on pages 3-4 of the Office Action. In view of the claims as presently amended, applicant respectfully traverses this rejection.

The present invention relates to a method and apparatus for producing an optical cable with an EFL (Excess Fiber Length), where a metal tube (13) that receives the optical fiber (11) therein is bent in a wave-like pattern as the tube advances in a length-wise or axial direction. The way in which the tube is bent distinguishes the claimed invention over the cited reference. Claims 2 and 7 as amended, recite a pair of rollers rotating in opposite directions arranged perpendicular to an advancing direction of the metal tube. As the pair of rollers rotates, trajectories drawn by opposite points on the pair of rollers are shaken or reciprocally moved in a direction perpendicular to the advancing direction of the metal tube.

In contrast, the reference to Militaur teaches a method and apparatus for providing EFL by passing a metal tube (12) containing an optical fiber bundle (14) through sets of rollers (20, 54, 22, 56, 24) arranged in a zig-zag pattern to reduce a gauge length of the metal tube and increase a gauge

thickness, which is defined to include an amplitude of the waved metal tube. (see Col. 4, lines 29-36; Col. 4, line 63 to Col. 5, line 5; Col 5, line 50 to Col. 6, line 13). The rollers of Militararu are arranged in a zig-zag pattern and are essentially fixed at certain positions, so trajectories of opposite points on the rollers are not shaken. The rollers do not move or shake in a perpendicular direction--they only rotate. Militare is completely missing the feature of the rollers shaken in a direction perpendicular to the advancing direction of the metal tube. Militararu teaches away from this by using the zig-zag pattern of rollers that remain in a fixed position.

Further, the rollers of the present invention are arranged perpendicular to the advancing direction of the metal tube, and thus face each other. Again, in contrast, the rollers of Militararu are not perpendicular to each other, as they are arranged in a zig-zag pattern relative to an advancing direction of the metal tube.

In addition, the rollers of the present invention are eccentrically biased, meaning they act like a cam due to the position of the pivot point. Thus, trajectories of opposite points are vertically shaken as the rollers rotate. It is clear that the first rollers (20, 22, 24) of Militararu are simple stationary rollers with a central shaft, and thus do not have a cam-like structure. In Militararu, the second rollers (54, 56) are elastically biased or spring loaded, but such elastic bias is only used to control the contact or pressing force of the second rollers when setting EFL. The spring tension exerted does not contribute to the bending of the tube in the serpentine shape. The second rollers are not shaken at all. (Col. 5, lines 38 to 49).

Amended claims 3 and 8, which depend from independent claims 2 and 7, are believed to be allowable as depending from allowable base claims. To further highlight how applicant's claimed invention is distinguishable over Militare, these claims recite a second pair of rollers (33) as an

additional component, which are arranged in a direction perpendicular to the advancing direction of the metal tube, and in which trajectories drawn by opposite points on the second pair of rollers are shaken perpendicular to the advancing direction of the metal tube while the second pair of rollers are rotating, like the first pair of rollers. Additionally, the second pair of rollers are arranged to have a phase difference as much as a half period of the wave given to the metal tube so that the wave of the metal tube may be reinforced in a direction exactly identical to the waveform given by the first pair of rollers.

Militaru, on the other hand, does not provide any teaching or suggestion about the relationship regarding the distance between rollers and a period of wave given to the metal tube. In addition, even though the rollers of Militaru may be arranged with a distance corresponding to a phase difference of a half period, the effect of matching the waves given to the metal tube and reinforcing the waves cannot be expected if trajectories of opposite points on the rollers of the cited reference are not shaken up and down.

Closing Remarks

For the foregoing reasons, applicant submits that the subject application is in condition for allowance and earnestly solicits an early Notice of Allowance. Should the Examiner be of the opinion that a telephone conference would expedite prosecution of the subject application, the Examiner is respectfully requested to call the undersigned at the below-listed number.

The Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal, or

even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit
Account No. 23-0920.

Respectfully submitted,

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February 22, 2006

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FIG. 1

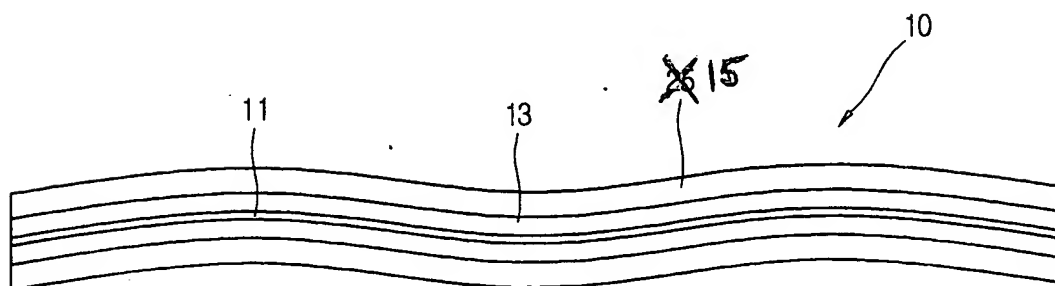


FIG. 2

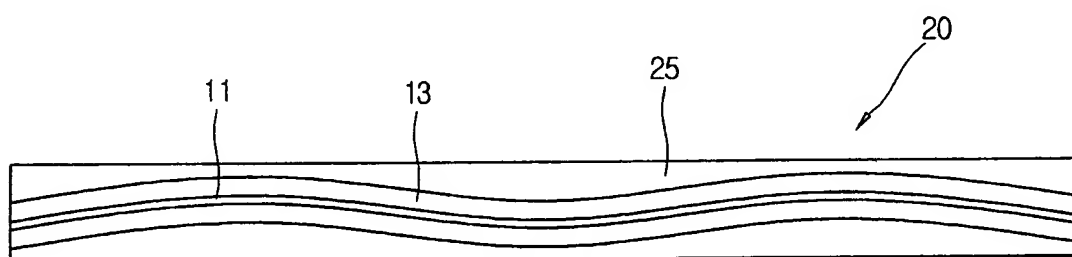


FIG. 3a

